

# E2, VE2

Leading air leak testing solutions for your leak test challenges



**PFEIFFER**  **VACUUM**

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## Leading air leak testing solutions for your leak test challenges

### Proven and innovative technology

The innovative Micro-Flow technology makes our leak testers unique in the industry. The patented Micro-Flow sensors enable leak testing with short cycle times and leading temperature stability. Furthermore, our leak testers provide superior sensitivity, robustness and repeatability compared to other air leak test methods. Our technologies and products are recognized by multiple international Standards such as SAE, USP, ASTM.

### E2

Our popular, efficient instrument model E2 is 25-40% faster than pressure decay tests. It is offered for industrial, rugged applications as well as for aseptic and cleanroom applications – optionally with stainless steel housing. Its graphical display, real time signature graph and touch screen make it very user-friendly without risking the integrity of the test set up. It comes with the option to dynamically or statically assign an IP address, enabling remote interface through your LAN.

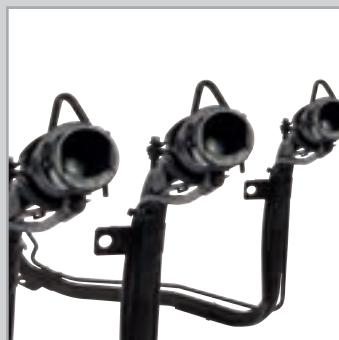
### VE2

The Model VE2 is a popular Vacuum leak test instrument handling medium size parts with leak tightness down to  $1 \cdot 10^{-4}$  sccs with air. Just as the E2, it is optionally available with a stainless steel housing and a graphical display. Moreover, the VE2 also offers the option to assign an IP address to the interface with your LAN.

### Applications



Pouches and trays



Automotive  
(fuel parts)



Medical equipment  
(drainage system)



Mechanical parts  
(gear box housing)



#### Customer benefits

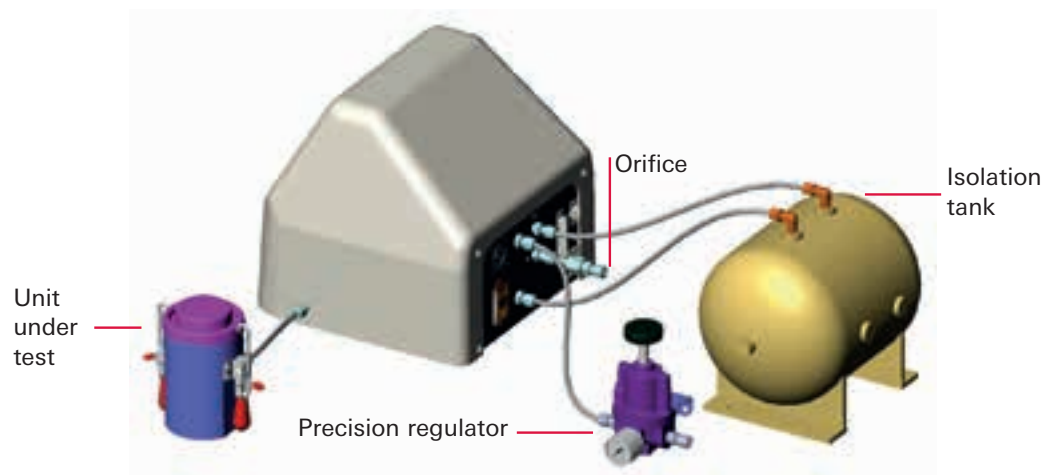
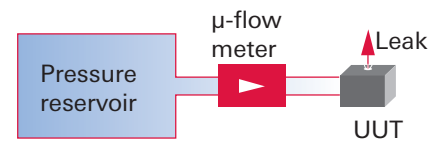
- Detection of leaks down to  $1 \cdot 10^{-4}$  sccs with air – high sensitivity (VE2)
- Automated test circuit with balance and quick fill/evacuation features – time saving
- User friendly operator interface for stand-alone applications – simple test setup
- Dynamic or static assignment of an IP address, enabling remote interface through your LAN
- Optional stainless steel housing
- Replaces dye in excess



## Operation principle – Micro-Flow testing

**Air leak testing with Micro-Flow sensor at pressure conditions**

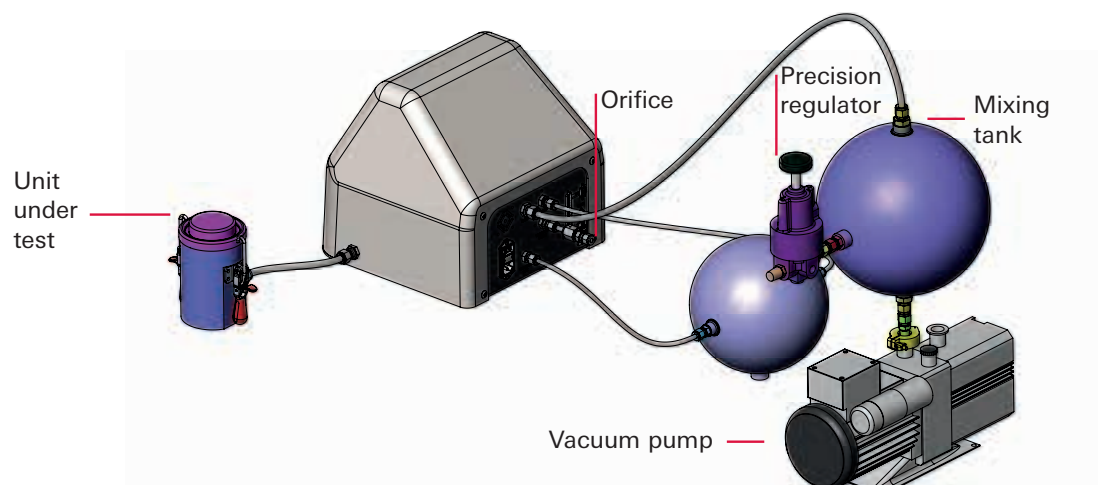
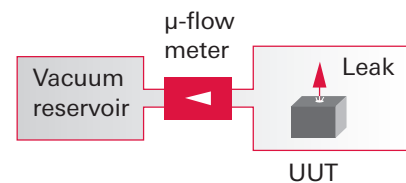
**Measurement with Micro-Flow sensor:**  
Gas (AIR) make up flow



**Basic structure of Micro-Flow set up for pressure test (example with E2)**

**Air leak testing with Micro-Flow sensor under vacuum conditions**

**Measurement with Micro-Flow sensor:**  
Gas (Air) extracted

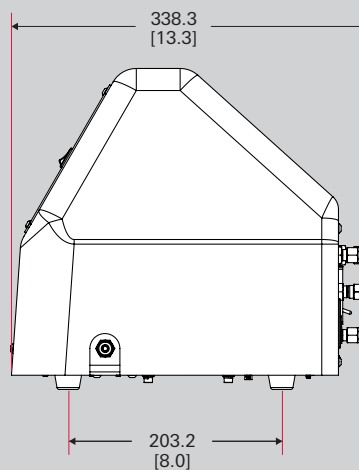
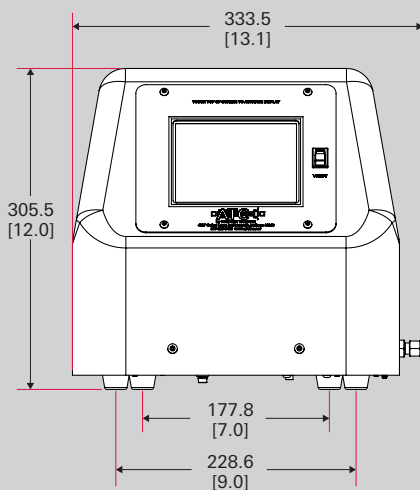


**Basic structure of Micro-Flow set up for vacuum test (example with VE2)**

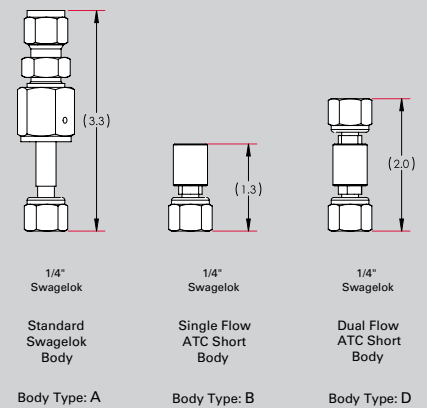
## Dimensions and technical data

### Dimensions

#### E2/VE2



#### Leak Orifices



Dimensions in mm  
[XX] Dimensions in inch

### Technical data<sup>1)</sup>

	E2	VE2
Applicable Micro-Flow sensors	IL2-M, IL2-KM, IL2-C	IL2-C, IL2-KM, IL2-M at pressures from atmosphere to 2 psia vacuum ( ≈ 138 mbar abs.)
Leak rates / sensitivity	0.01 cc/min and higher	$1 \cdot 10^{-4}$ sccs ( ≈ $1 \cdot 10^{-4}$ mbar l/s)
Pressure ranges	14.5 psia to 165 psia / 1 bar – 11 bar (absolute)	Vacuum - 2 psia ( ≈ 138 mbar abs.) to barometric pressure
Dimensions	12" W x 12" H x 12" D / 305 x 305 x 305 mm (does not include connectors and fittings) Expansion tank and pressure regulators are externally mounted	
Gases	Dry, clean gases: air, nitrogen (further gases detectable)	
Pneumatic connections	1/4 inch Swagelok®	Test ports and vacuum 3/8 inch Swagelok® (on side of instrument)
Digital inputs	5 VDC, Opto-Isolated for start, stop, type, pressure switch, verify	
Digital outputs	30 VDC-20 mA, Opto-isolated for pass, fail, clamp, test type, exhaust and custom	
Analog outputs	Single channel, 0-5 VDC pressure control	
Power supply	115 VAC/60 Hz, 220 VAC/50 Hz (optional)	
Interfaces	RJ-45 Ethernet, or RS-232 serial Interface	

<sup>1)</sup> specific technical specification is depending on used sensor, we are happy to support you to select the perfect configuration for your application

**Order number matrix**  
**E2/VE2**

Order number  
**abc def(g)hijklmno**

Version		ab
E2 – pressure applications		E2
VE2 – vacuum applications		V2

Full scale flow (cc/min)		cdef(g)	
“C-Series” for harsh environments & higher pressure applications (4 digit flow designation)		“M-Series” for clean environments & lower pressure applications (5 digit flow designation)	
1 cc/min	001C	0.5 cc/min	0500M
3 cc/min	003C	1 cc/min	1000M
5 cc/min	005C	3 cc/min	3000M
10 cc/min	010C	5 cc/min	5000M
25 cc/min	025C	10 cc/min	010KM
50 cc/min	050C	25 cc/min	025KM
100 cc/min	100C	50 cc/min	050KM
250 cc/min	250C	100 cc/min	100KM
500 cc/min	500C	250 cc/min	250KM
1000 cc/min	001L		

Operating pressure (Psia / bar)		hij	
“C-Series”		“M-Series”	
2 to 15 Psia / $\approx$ 1 bar abs. <sup>1</sup>	015	2 to 15 Psia / $\approx$ 1 bar abs. <sup>1</sup>	015
up to 30 Psia / $\approx$ 2 bar abs. <sup>2</sup>	030	up to 30 Psia / $\approx$ 2 bar abs. <sup>2</sup>	030
up to 100 Psia / $\approx$ 7 bar abs. <sup>2</sup>	100	up to 65 Psia / $\approx$ 4.5 bar abs. <sup>2</sup>	065
up to 165 Psia / $\approx$ 11 bar abs. <sup>2,3</sup>	250		

Pressure switch (not available for vacuum applications)		k
Internal 4 psig ( $\approx$ 0.3 bar) pressure switch		P
No pressure switch		N

Cover material		l
Stainless steel		S
Fiberglass		F

Mounting feet		m
Machine mount (#8-32 threaded rubber isolator)		M
Rubber bumper		R

Operating voltage		n
110/120 V AC 50/60Hz		1
220/240 V AC 50/60Hz		2

Test port inlet filter (vacuum applications only)		o
90µ external filter		F
No filter		(Blank)

<sup>1</sup> VE2 – Vacuum applications

<sup>2</sup> E2 – Pressure applications

<sup>3</sup> C-Series maximum operating pressure 165 Psia  $\approx$  11 bar abs.

## Accessories

### Accessories

	E2	VE2
LeakTek™	■	■
Adaptive Test™ utility tools	■	■
Leak Rx™	■	■
Fine automatic pressure/flow controller	■	■
Programmable automatic pressure controller for constriction/blockage tests with feedback sensor	■	■
Expansion tank: small/medium	■	■
Expansion tank: large	■	■
Precision pressure regulator: small/medium volume	■	■
Precision pressure regulator: large volume, dual stage	■	■
Verification orifice: ECD or ED	■	■
Verification orifice: ECS air calibration	■	■
Glass orifice: calibrated at barometric inlet, vacuum outlet on primary std.	■	■
Remote exhaust valve with filter	■	■
Pre-fill option for large volume parts	■	■
Remote pressure sensor for external pressure monitoring	■	■
Large leak strain measurement for pouches (see picture below)		■
Pressure drop option: large constrictions tests	■	■
Oil-free vacuum generation and control package (ca. 0.3–0.8 bar abs.)		■
Oil-free vacuum generation and control package (ca. 0.07–0.15 bar abs.)		■
Oil-free vacuum generation and control package (ca. 0.07–0.15 bar abs.)		■
Shallow vacuum generation and control package		■
Remote pendant with Start/Stop button	■	■
A2LA certified calibration	■	■
Dual range calibration	■	
37 Pin shielded harness to PLC	■	■
Mass Extraction UUT filter		■
Stainless steel enclosure for cleanroom applications	■	■



VE2 optional pouch fixture of large leak measurement



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